

Remarks/Arguments

Claim 25

Applicants note that although the Examiner rejects Claim 25 on page 1 of the instant Office Action dated September 13, 2006, no specific rejection of Claim 25 has been described in the Examiner's Remarks. In other words, no prior art has been cited in a rejection of Claim 25 nor has it been rejected under 35 U.S.C. § 112. In addition, Applicants respectfully point out that Claim 25 was entered into the record as a new claim in the Reply dated June 30, 2006. Consequently, no prior art has been cited against Claim 25 during the prosecution of this application.

Applicants respectfully submit that the Final Office Action dated September 13, 2006 is improper due to the indefiniteness of the current status of Claim 25. *See* 37 C.F.R. 1.113(b) "In making such final rejection, the examiner shall repeat or state *all grounds of rejection* then considered *applicable to the claims* in the application, *clearly stating the reasons* in support thereof." (Emphasis added). The Examiner has not stated any grounds of rejection with respect to Claim 25 nor any reasons in support thereof.

Applicants respectfully request that the Examiner state all grounds of rejection considered applicable to the Claims (especially Claim 25), clearly stating the reasons in support thereof as per 37 C.F.R. 1.113(b). Otherwise, Applicants respectfully request that Claim 25 be acknowledged as allowable.

Claims 1-6, 8-12, 14 and 16-22 rejected under 35 U.S.C. 102(b) as being anticipated by US Patent Number 6,220,280 (Lai), or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lai in view of US Patent Number 3,913,885 (Greenwood et al.)

The Examiner rejects Claims 1-6, 8-12, 14 and 16-22 under 35 U.S.C. 102(b) as being anticipated by Lai, or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lai in view of Greenwood et al. Applicants respectfully traverse the rejection.

"A claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described in a single prior art reference." *Vandergaal Bros. v. Union Oil of California*, 814 F.2d 628, 631; 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). MPEP

§2131. (Emphasis added). The Examiner states in item 5 of the Office Action of September 13, 2006 that Lai discloses dome reservoir (16), but Lai discloses “a pilot valve 16 for operating the relief valve 14”. Lai Column 2, lines 48-49. Component 16 **is not** a reservoir as defined in the present application.

Each and every element of the claims is not found either expressly or inherently described in Lai. Claim 1 recites: “said piston is in fluid communication with said reservoir.” Reservoir 152 is not in fluid communication with piston 58 of Lai. Pilot valve 16 does not offer a fluid communication between piston 58 and reservoir 152 because pilot valve 16 comprises piston 142 (see Figures 3A and 3B) that provides a fluid barrier that separates P3 from P2 (see Figure 1). Accordingly, there is no fluid communication between P3 and P2 of Lai. Specifically, element 72 and element 131 are fluidly disconnected by the pilot valves piston assembly.

Claim 1 recites “a dampening ring positioned circumferentially about said piston and operatively arranged to dampen movement of said piston”. Lai fails to disclose a means for dampening the movement of a piston in a relief valve. Lai teaches “[s]uitable seals 62...mounted in annular grooves about the piston 58 and ride in sealing relationship with the bore 54 as the piston 58 moves within the bore 54.” Lai, Column 3, lines 17-20. Seals 62 do not provide any means of dampening the movement of the piston to reduce the likelihood of rapid piston movements or oscillations and provide only a “sealing relationship”. Applicants courteously request the Examiner’s attention to wear ring 313 of Figure 3 and paragraph [0013], wherein “[t]o prevent metal-to-metal contact and possible scoring between piston 60 and liner 58, wedge ring 312 and wear ring 313 are fit into shallow grooves in the piston that allow the outboard surface of each ring, and not the outside surface of the piston, to slide against the liner bore as the piston moves up and down” and to paragraph [0015], wherein “[p]iston seal 310, an elastomeric O-ring, provides the pressure- and leak-tight seal between piston 60 and liner 58. A PTFE back-up ring 311 is designed to give the O-ring support and prevent excessive deflection of the O-ring into the gap between metal parts 58 and 60.” Lai discloses suitable seals 62 and applicants disclose seals through ring 311 and ring 313, **but** applicants further disclose **another ring**, wedge ring 312, which provides means of dampening the movement of the piston to reduce the likelihood of rapid piston movements or oscillations. Lai does not disclose a dampening ring of any kind let alone a dampening wedge ring. Claim 1 is not anticipated by Lai. Claims 2-6, 8-

12 and 16, dependent upon Claim 1, enjoy the same distinction. Claims 1-6, 8-12 and 16 are allowable, upon which action is courteously requested.

Claim 17 recites “dampening movement of said piston by means of a dampening ring positioned circumferentially about said piston”. Lai fails to disclose a means for dampening the movement of a piston in a relief valve. Lai teaches “[s]uitable seals 62...mounted in annular grooves about the piston 58 and ride in sealing relationship with the bore 54 as the piston 58 moves within the bore 54.” Lai, Column 3, lines 17-20. Seals 62 do not provide any means of dampening the movement of the piston to reduce the likelihood of rapid piston movements or oscillations and provide only a “sealing relationship”. Applicants courteously request the Examiner’s attention to wear ring 313 of Figure 3 and paragraph [0013], wherein “[t]o prevent metal-to-metal contact and possible scoring between piston 60 and liner 58, wedge ring 312 and wear ring 313 are fit into shallow grooves in the piston that allow the outboard surface of each ring, and not the outside surface of the piston, to slide against the liner bore as the piston moves up and down” and to paragraph [0015], wherein “[p]iston seal 310, an elastomeric O-ring, provides the pressure- and leak-tight seal between piston 60 and liner 58. A PTFE back-up ring 311 is designed to give the O-ring support and prevent excessive deflection of the O-ring into the gap between metal parts 58 and 60.” Lai discloses suitable seals 62 and applicants disclose seals through ring 311 and ring 313, but applicants further disclose another ring, wedge ring 312, which provides means of dampening the movement of the piston to reduce the likelihood of rapid piston movements or oscillations. Lai does not disclose a dampening ring of any kind let alone a dampening wedge ring. Claim 17 is not anticipated by Lai. Claims 18-22, dependent upon Claim 17, enjoy the same distinction. Claims 17-22 are allowable, upon which action is courteously requested.

A *prima facie* case of obviousness has not been established in regards to Claim 1 since the prior art references (when combined) must teach or suggest all the claim limitations which they do not because they fail to teach or suggest the limitations of Claim 1 recited as: “wherein said first fluid exerts an upward force on said piston, said second fluid exerts a downward force on said piston, and said piston is arranged to move in response to a differential in said upward and downward forces, wherein said first and second fluids are isolated from one another”. The teaching or suggestion to make the claimed combination and the reasonable expectation of

success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Specifically, the present invention operates on a principle of different pressures between the first and second fluids, causing the piston to move from open or shut positions. Both Lai and Greenwood et al. teach the opening and closing of the piston by means of a pressure differential between a first fluid and a spring. If the spring in Lai or Greenwood et al. were removed, neither of the valves would operate and neither Lai nor Greenwood provides any teaching or suggestion to use an alternate to the disclosed spring let alone a specific suggestion to use a second fluid. Thus, the combined Lai and Greenwood references fail to render Claim 1 obvious as they fail either to teach or suggest all the limitations of that claim. Applicants respectfully request reconsideration and allowance of Claim 1.

Claim 1 is not obvious over Lai in view of Greenwood et al. “[i]f an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious.” *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). Claims 2-6, 8-12 and 16 depend from Claim 1 and thus incorporate all the limitations of that claim. Because, as discussed above, the Lai and Greenwood et al. patents fail to render obvious Claim 1, they also fail to render obvious Claims 2-6, 8-12 and 16. Claims 1-6, 8-12 and 16 are allowable, upon which action is courteously requested.

A *prima facie* case of obviousness has not been established in regards to Claim 17 since the prior art references (when combined) must teach or suggest all the claim limitations which they do not because they fail to teach or suggest the limitations of Claim 17 recited as: “exerting a downward force on said piston, wherein said downward force is generated by a second fluid in a dome reservoir connected to said relief valve; moving said piston in response to a differential between said upward and downward forces”. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Specifically, the present invention operates on a principle of different pressures between the first and second fluids, causing the piston to move from open or shut positions. Both Lai and Greenwood et al. teach the opening and closing of the piston by means of a pressure differential

between a first fluid and a spring. If the spring in Lai or Greenwood et al. were removed, neither of the valves would operate. There is no reasonable expectation of success and no suggestion to make the claimed combination.

Claim 17 is not obvious over Lai in view of Greenwood et al. “[i]f an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious.” *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). Claims 18-22 depend from Claim 17 and thus incorporate all the limitations of that claim. Because, as discussed above, the Lai and Greenwood et al. patents fail to render obvious Claim 17, they also fail to render obvious Claims 18-22. Claims 17-22 are allowable, upon which action is courteously requested.

Claims 1-6, 8-15 and 17-22 rejected under 35 U.S.C. 102(e) as being anticipated by US Patent Number 6,978,799 (Kugelev et al.) or, in the alternative, under 35 U.S.C. 103(a) as obvious over 6,978,799 (Kugelev et al.) in view of Greenwood et al. (US 3,913,885)

The Examiner rejects Claims 1-6, 8-15 and 17-22 under 35 U.S.C. 102(e) as being anticipated by US Patent Number 6,978,799 (Kugelev et al.). Applicants respectfully traverse the rejection.

“A claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described in a single prior art reference.” *Vandergaal Bros. v. Union Oil of California*, 814 F.2d 628, 631; 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). MPEP §2131. (Emphasis added). Each and every element of the claims is not found either expressly or inherently described in Kugelev.

Claim 1 recites “a dampening ring positioned circumferentially about said piston and operatively arranged to dampen movement of said piston”. Kugelev fails to disclose a dampening ring operatively arranged to dampen the movement of a piston in a relief valve. Kugelev teaches “a delay fluid to delay a return of the valve member from the open position to the closed position... The pressure of the control fluid beneath the piston provides a delay force to the piston... As the pressure of the system fluid returns to an acceptable level, the fluid beneath the piston acts against the piston to delay the return of the piston to the closed position.” Kugelev Column 3, lines 2-17. Kugelev relies on the delay fluid system to reduce “chattering” and fails to disclose a dampening ring to dampen chattering. Seal 29 of Kugelev “provides a sealing

engagement between partition 27 and valve member 25” and provides no dampening force against the piston to reduce the likelihood of rapid piston movements or oscillations. Kugelev Column 3, lines 57-59. Applicants courteously request the Examiner’s attention to wear ring 313 of Figure 3 and paragraph [0013], wherein “[t]o prevent metal-to-metal contact and possible scoring between piston 60 and liner 58, wedge ring 312 and wear ring 313 are fit into shallow grooves in the piston that allow the outboard surface of each ring, and not the outside surface of the piston, to slide against the liner bore as the piston moves up and down” and to paragraph [0015], wherein “[p]iston seal 310, an elastomeric O-ring, provides the pressure- and leak-tight seal between piston 60 and liner 58. A PTFE back-up ring 311 is designed to give the O-ring support and prevent excessive deflection of the O-ring into the gap between metal parts 58 and 60.” Kugelev discloses a sealing engagement by means of seal 29 and applicants disclose seals through ring 311 and ring 313, but applicants further disclose an additional ring, disclosed wedge ring 312, which provides means of dampening the movement of the piston to reduce the likelihood of rapid piston movements or oscillations. Kugelev does not disclose a dampening ring of any kind let alone a dampening wedge ring.

Furthermore, as recited in Claim 1, “said first fluid exerts an upward force on said piston, said second fluid exerts a downward force on said piston”, the second fluid exerts a downward force only on the piston. Kugelev teaches a second fluid exerting both an upward and a downward force to create the dampening function to reduce chatter as has been previously described. If the second fluid of the present invention were to exert an upward force on the piston, it would render the present invention non-functional.

Thus, Kugelev fails to anticipate each and every element of Claim 1, and Claim 1 is not anticipated by Kugelev. Claims 2-6, 8-15 and 16, dependent upon Claim 1, enjoy the same distinction. Claims 1-6, 8-15 and 16 are allowable, upon which action is courteously requested.

Similarly, Claim 17 recites “dampening movement of said piston by means of a dampening ring positioned circumferentially about said piston”. Kugelev fails to disclose dampening the movement of a piston in a relief valve by use of a dampening ring. Kugelev teaches a piston dampening method that controls the fluid flow between an upper and lower portion to reduce the likelihood of rapid piston movements or oscillations. Applicants courteously request the Examiner’s attention to wear ring 313 of Figure 3 and paragraph [0013],

wherein “[t]o prevent metal-to-metal contact and possible scoring between piston **60** and liner **58**, wedge ring **312** and wear ring **313** are fit into shallow grooves in the piston that allow the outboard surface of each ring, and not the outside surface of the piston, to slide against the liner bore as the piston moves up and down” and to paragraph [0015], wherein “[p]iston seal **310**, an elastomeric O-ring, provides the pressure- and leak-tight seal between piston **60** and liner **58**. A PTFE back-up ring **311** is designed to give the O-ring support and prevent excessive deflection of the O-ring into the gap between metal parts **58** and **60**.” Kugelev discloses a sealing engagement by means of seal **29** and applicants disclose seals through ring **311** and ring **313**, but applicants further disclose an additional ring, wedge ring **312**, which provides means of dampening the movement of the piston to reduce the likelihood of rapid piston movements or oscillations. Kugelev does not disclose a dampening ring of any kind let alone a dampening wedge ring.

Furthermore, as recited in Claim 17, “exerting a downward force on said piston, wherein said downward force is generated by a second fluid in a dome reservoir connected to said relief valve”, the second fluid exerts a downward force only on the piston. Kugelev teaches a second fluid exerting both an upward and a downward force to create the dampening function to reduce chatter as has been previously described. If the second fluid of the present invention were to exert an upward force on the piston, it would render the present invention non-functional.

Thus, Kugelev fails to anticipate each and every element of Claim 17, and Claim 17 is not be anticipated by Kugelev. Claims 18-22, dependent upon Claim 17, enjoy the same distinction. Claims 17-22 are allowable, upon which action is courteously requested.

A *prima facie* case of obviousness has not been established in regards to Claims 1 and 17 since the prior art references (when combined) must teach or suggest all the claim limitations, which they do not. The references when combined fail to teach or suggest the limitations of Claim 1 recited as: “said second fluid exerts a downward force on said piston, and said piston is arranged to move in response to a differential in said upward and downward forces”, and Claim 17 recited as: “exerting a downward force on said piston, wherein said downward force is generated by a second fluid in a dome reservoir connected to said relief valve; moving said piston in response to a differential between said upward and downward forces”. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both

be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Specifically, the present invention operates on a principle of different pressures between the first and second fluids, causing the piston to move from open or shut positions. The second fluid exerts only a downward force on the piston. References Lai and Greenwood et al. teach the opening and closing of the piston by means of a pressure differential between a first fluid and a spring. If the spring in Lai or Greenwood et al. were removed, neither of the valves would operate. Reference Kugelev et al. teaches a second fluid exerting both an upward and downward force, a function of the second fluid that would render the present invention inoperable. There is no reasonable expectation of success and no suggestion to make the claimed combination.

Claims 1 and 17 are not obvious over Kugelev, et al. in view of Greenwood et al. “[i]f an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious.” *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). Claims 2-6 and 8-15 depend from Claim 1, and Claims 18-22 depend from Claim 17 and thus incorporate all the limitations of that claim. Because, as discussed above, the references fail to render obvious Claims 1 and 17, they also fail to render obvious Claims 2-6, 8-15 and 18-22. Claims 1-6, 8-15 and 17-22 are allowable, upon which action is courteously requested.

Claims 7 and 23 rejected under 35 U.S.C. 102(b) as being anticipated by Lai or, in the alternative, under 35 U.S.C 103(a) as obvious over Lai in view of US Patent Number 5,174,326 (Steinert et al.)

The Examiner rejects Claims 7 and 23 under 35 U.S.C. 102(b) as being anticipated by Lai (US 6,220,280) or, in the alternative, under 35 U.S.C 103(a) as obvious over Lai (US 6,220,280) in view of Steinert et al. (US 5,174,326). Applicants courteously traverse the rejection.

“A claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described in a single prior art reference.” *Vandergaal Bros. v. Union Oil of California*, 814 F.2d 628, 631; 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). MPEP §2131. (Emphasis added). Claim 7 depends from Claim 1 and thus incorporates all the elements of Claim 1. As discussed above, each and every element of the claims is not found either expressly or inherently described in Lai.

A *prima facie* case of obviousness is not established since the three basic criteria have not been met. First, the references lack suggestion or motivation, either by themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine reference teachings to include a dampening ring positioned circumferentially about the piston to reduce the likelihood of rapid piston oscillations. Second, there must be a reasonable expectation of success, and none of the sealing members or like components of the references offer a reasonable expectation of success or suggestion thereof that they will successfully dampen piston movement to reduce the likelihood of rapid piston oscillations. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations which they do not because they fail to teach or suggest a dampening ring positioned circumferentially about the piston to reduce the likelihood of rapid piston oscillations.

Claim 7 is not anticipated by Lai because Claim 7, dependant upon Claim 1, contains all of the same limitations as Claim 1 and Claim 1 has been shown previously to not be anticipated by Lai. Similarly, Claim 7 is not obvious over Lai in view of Steinert because Claim 7, dependant upon Claim 1, contains all of the same limitations as Claim 1. It would not have been obvious at the time the invention was made to a person having ordinary skill in the art to use a dampening ring positioned circumferentially about the piston to reduce rapid oscillations. Lai does not disclose any means of reducing rapid piston oscillations as previously shown including a dampening, and Steinert does not even discuss piston movement or reducing rapid piston oscillations. Claim 7, dependent upon Claim 1, enjoys each and every distinction previously recited for Claim 1. Therefore, Claim 7 is allowable, upon which action is courteously requested.

Claim 23 is not anticipated by Lai because Claim 23, dependant upon Claim 17, contains all of the same limitations as Claim 17 and Claim 17 has been shown previously to not be anticipated by Lai. Similarly, Claim 23 is not obvious over Lai in view of Steinert because Claim 23, dependant upon Claim 17, contains all of the same limitations as Claim 17. It would not have been obvious at the time the invention was made to a person having ordinary skill in the art to use a dampening ring positioned circumferentially about the piston to reduce rapid oscillations. Lai does not disclose any means of reducing rapid piston oscillations as previously shown including a dampening, and Steinert does not even discuss piston movement or reducing rapid piston oscillations. Claim 23, dependent upon Claim 17, enjoys each and every distinction

previously recited for Claim 17. Therefore, Claim 23 is allowable, upon which action is courteously requested.

Claims 7 and 23 rejected 35 U.S.C. 102(e) as being anticipated by Kugelev et al. (US 6,978,799) or, in the alternative, under 35 U.S.C 103(a) as obvious over Kugelev et al. (US 6,978,799) in view of Steinert et al. (US 5,174,326)

The Examiner rejects Claims 7 and 23 under 35 U.S.C. 102(e) as being anticipated by Kugelev et al. (US 6,978,799) or, in the alternative, under 35 U.S.C 103(a) as obvious over Kugelev et al. (US 6,978,799) in view of Steinert et al. (US 5,174,326). Applicants courteously traverse the rejection.

“A claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described in a single prior art reference.” *Vandergaal Bros. v. Union Oil of California*, 814 F.2d 628, 631; 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). MPEP §2131. (Emphasis added). Each and every element of the claims is not found either expressly or inherently described in Kugelev.

A *prima facie* case of obviousness is not established since the three basic criteria have not been met. First, the references lack suggestion or motivation, either by themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine reference teachings to include a dampening ring positioned circumferentially about the piston to reduce the likelihood of rapid piston oscillations. Second, there must be a reasonable expectation of success, and none of the sealing members or like components of the references offer a reasonable expectation of success or suggestion thereof that they will successfully dampen piston movement to reduce the likelihood of rapid piston oscillations. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations which they do not because they fail to teach or suggest a dampening ring positioned circumferentially about the piston to reduce the likelihood of rapid piston oscillations.

Claim 7 is not anticipated by Lai because Claim 7, dependant upon Claim 1, contains all of the same limitations as Claim 1 and Claim 1 has been shown previously to not be anticipated by Kugelev. Similarly, Claim 7 is not obvious over Kugelev in view of Steinert because Claim 7, dependant upon Claim 1, contains all of the same limitations as Claim 1 and it wouldn't have

been obvious at the time the invention was made to a person having ordinary skill in the art to use a dampening ring positioned circumferentially about the piston to reduce rapid oscillations. Kugelev does not disclose a dampening ring of any kind let alone a dampening wedge ring, and Steinert does not even discuss piston movement or reducing rapid piston oscillations. Claim 7, dependent upon Claim 1, enjoys each and every distinction previously recited for Claim 1. Therefore, Claim 7 is allowable, upon which action is courteously requested.

Claim 23 is not anticipated by Kugelev because Claim 23, dependant upon Claim 17, contains all of the same limitations as Claim 17 and Claim 17 has been shown previously to not be anticipated by Kugelev. Similarly, Claim 23 is not obvious over Kugelev in view of Steinert because Claim 23, dependant upon Claim 17, contains all of the same limitations as Claim 17. It would not have been obvious at the time the invention was made to a person having ordinary skill in the art to use a dampening ring positioned circumferentially about the piston to reduce rapid oscillations. Kugelev does not disclose a dampening ring of any kind let alone a dampening wedge ring, and Steinert does not even discuss piston movement or reducing rapid piston oscillations. Claim 23, dependent upon Claim 17, enjoys each and every distinction previously recited for Claim 17. Therefore, Claim 23 is allowable, upon which action is courteously requested.

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Reply to Office Action of September 13, 2006
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Conclusion

Applicants respectfully submit that all pending claims are now in condition for allowance, which action is courteously requested.

Respectfully submitted,



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